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DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/679,053	KING ET AL.
	Examiner	Art Unit
	Carlos A. Martinez	2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-96 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-96 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 October 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/02/2003</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: copending application must be updated to reflect current status (refer to pg 1 of specification). Further the specifications are objected to because reference character “18” has been used to designate both a “final recording substrate” (refer to lines 3-4 of pg.42) and a “pivot” (refer to line 28 of pg. 43).

Appropriate correction is required.

2. The abstract of the disclosure is objected to because it contains legal phraseology.

Correction is required. See MPEP § 608.01(b).

Claim Objections

1. Claims 2-35 are objected to because of the following informalities: “An apparatus” is an improper reference to claim 1 [note: change to “The printing apparatus” or “The apparatus”].

Appropriate correction is required.

2. Claim 33 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 33 recites a block of intermediate transfer material; however, this does not provide further limitation to the parent claim (claim 1), which recites a block of intermediate transfer material that is solid.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 36 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191).

Jones discloses a printing process that comprises supplying an intermediate transfer material having a melting point of at least about 30°C and no more than about 90°C (refer to lines 38-65 of column 9), applying a molten layer the intermediate transfer material to an intermediate transfer member (refer to lines 35-39 of column 7), applying to the intermediate transfer material a marking material in an imagewise pattern to form an image on the layer of molten intermediate transfer material (refer to lines 6-15 of column 14 and lines 54-56 of column 18), and transferring the marking material from the intermediate transfer member to a final recording substrate (refer to lines 16-24 of column 14). *Further, with respect to claim 36, the printing process is anticipated based on the functions provided by the apparatus.*

5. Claim 37 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191).

Jones discloses a process where the transferring of the marking material from the intermediate transfer member to the final recording substrate transfers a quantity of the intermediate transfer material to the final recording substrate (refer to lines 66-67 of column 7 and lines 1-5 of column 8).

6. Claim 38 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191). Jones discloses a process where the thickness of the outer layer of the intermediate transfer material on the final recording substrate is on average calculated to be about 0.8 nanometers (refer to lines 66-67 of column 7 and lines 1-7 of column 8), which is within the claimed range of at least about 0.1 nanometers.

7. Claim 39 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191). Jones discloses a process where the thickness of the outer layer of the intermediate transfer material on the final recording substrate can vary from about 0.01 microns to about 50 microns (refer to lines 37-44 of column 8), which is within the claimed range of at least about 1 nanometer. It should be noted also that the mention of a final recording substrate being on average calculated to be about 0.8 nanometers, as stated by Jones (refer to lines 66-67 of column 7 and lines 1-7 of column 8), would also sufficiently meet the criteria range.

8. Claim 40 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191). Jones discloses a process where the thickness of the outer layer of the intermediate transfer material on the final recording substrate is on average calculated to be about 0.8 nanometers (refer to lines 66-67 of column 7 and lines 1-7 of column 8), which is within the claimed range of no more than about 100 nanometers.

9. Claim 41 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191). Jones where the thickness of the outer layer of the intermediate transfer material on the final recording substrate can vary from about 0.01 microns to about 50 microns (refer to lines 37-44 of column 8), which covers the claimed range of no more than about 10 nanometers. It should be noted also that the mention of a final recording substrate being on average calculated to be about 0.8 nanometers, as stated by Jones (refer to lines 66-67 of column 7 and lines 1-7 of column 8), would also sufficiently meet the criteria range.

10. Claims 42-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191). Jones discloses a process wherein the mass of the outer layer of intermediate transfer material on the final recording substrate is at least about 0.1 milligrams per page, at least about 0.5 milligrams per page, at least about 1 milligram per page, at least about 200 milligrams per page, at least about 50 milligrams per page, and at least about 10 milligrams per page (refer to lines 7-12 of column 8).

11. Claims 65-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191).

With respect claims 65, 66, and 67, *the printing process is anticipated based on the functions provided by the apparatus.*

With respect to claim 68, Jones teaches the heating of the intermediate transfer member to a temperature of no more than about 120°C (refer lines 53-65 of column 9). Further, *the printing process is anticipated based on the functions provided by the apparatus.*

With respect to claim 69, Jones teaches the heating of the intermediate transfer member to a temperature of no more than about 100°C (refer lines 53-65 of column 9). Further, *the printing process is anticipated based on the functions provided by the apparatus.*

With respect to claim 70, Jones teaches the heating of the intermediate transfer member to a temperature of no more than about 80°C (refer lines 53-65 of column 9). Further, *the printing process is anticipated based on the functions provided by the apparatus.*

With respect to claim 71, Jones teaches the heating of the intermediate transfer member to a temperature of no more than about 70°C (refer lines 53-65 of column 9). Further, *the printing process is anticipated based on the functions provided by the apparatus.*

12. Claim 88 is rejected under 35 U.S.C. 102(b) as being anticipated by Fujishiro (US6295438). Fujishiro discloses an applicator for applying an intermediate transfer material to an intermediate transfer member of printing apparatus (refer to element 30B of Fig. 1B and lines 32-35 of column 5), a holder for holding a block of intermediate transfer material (refer to element 32B of Fig. 1B and lines 32-35 of column 5), and a biasing mechanism for biasing the

holder toward the intermediate transfer member of the printing apparatus (refer to element 33B of Fig. 1B and lines 32-35 of column 5).

13. Claim 92 is rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US5805191). Jones discloses a process that involves the transfer of intermediate transfer material to both the image areas and in nonimage areas (refer to lines 17-26 of column 8).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-5, 7-9, 12, 14-19, 28, 32, 34, 35, 57-59, 61-62, 72-74, 77-80, 84, and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438).

- Jones discloses a printing apparatus for applying a marking material to a final substrate (Fig. 1) with an intermediate transfer member (Fig. 1, element 14), an intermediate transfer material applicator (Fig. 1, element 16) to form a molten layer of intermediate transfer material (refer to element 12 of Fig. 3 and lines 38-52 of column 9), a marking material applicator (Fig. 1, element 11), and a transferring apparatus – which includes a transferring roller (Fig. 1, element 22) –

to transfer the imagewise pattern of marking material to a final substrate (Fig. 1 and lines 3-23 of column 7).

- Though Jones teaches an intermediate transfer material applicator, Jones fails to teach an intermediate transfer material applicator that is a solid block. Fujishiro teaches a solid block of intermediate transfer material applicator (refer to element 31 of Fig. 1B and lines 32-35 of column 5) that is used to form an intermediate transfer material layer (refer to lines 40-41 of column 5) on an intermediate transfer member (Fig. 1B, element 10B).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus, as taught by Jones, with an intermediate transfer material applicator that is a solid block, as taught by Fujishiro, for the purpose of providing an alternate means of firmly applying an intermediate material layer.

Further, with respect to claim 2, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to provide a holder for holding a block of intermediate transfer material in contact with the intermediate transfer member, as taught by Jones (refer to element 30B and 32B of Fig. 1B and lines 32-35 of column 5), for the purpose of providing a secure housing for the block of intermediate transfer material.

Further, with respect to claim 3, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to provide for

movement between an engaged and disengaged position, as taught by Jones (refer to lines 37-38 and lines 48-51 of column 6), as regards a holder, as taught by Fujishiro, for the purpose of providing on-demand application.

Further, with respect to claim 4, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to have a block of intermediate transfer material in the holder in contact with an intermediate transfer material, as taught by Fujishiro (refer to lines 35-38 of column 5), when in the engaged position, as taught by Jones (refer to lines 37-38 and lines 48-51 of column 6), for the purpose of providing application of the intermediate transfer material during engagement.

Further, with respect to claim 5, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to include a retractor for movement between an engaged and disengaged position, as taught by Jones (refer to lines 37-38 of column 6), as regards a holder, as taught by Fujishiro, for the purpose of providing on-demand application.

With respect to claim 7, Jones teaches a heater to heat the intermediate transfer member to a temperature of at least about 40°C (refer to element 19 of Fig. 1 and lines 45-65 of column 9).

With respect to claim 8, Jones teaches that the heater could heat the intermediate transfer member to a temperature of at least about 50°C (refer to element 19 of Fig. 1 and lines 45-65 of column 9).

With respect to claim 9, Jones teaches that the heater could heat the intermediate transfer member to a temperature of at least about 60°C (refer to element 19 of Fig. 1 and lines 45-65 of column 9).

With respect to claim 10, Jones teaches that the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of at least about 0.05 micron (refer to lines 37-44 of column 8).

With respect to claim 11, Jones teaches that the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of at least about 0.1 micron (refer to lines 37-44 of column 8).

With respect to claim 12, Jones teaches that the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of at least about 1 micron (refer to lines 37-44 of column 8).

With respect to claim 14, Jones teaches that the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of no more than about 50 microns (refer to lines 37-53 of column 8).

With respect to claim 15, Jones teaches that the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of no more than about 10 microns (refer to lines 37-53 of column 8).

With respect to claim 16, Jones teaches a substrate heater that is situated to heat the final recording substrate prior to transfer of the imagewise pattern of marking material thereto (refer to element 21 of Fig.1 and lines 53-65 of column 9).

With respect to claim 17, Jones teaches that the substrate heater heats the final recording substrate prior to a temperature of at least about 60°C (refer to element 21 of Fig.1 and lines 53-65 of column 9).

With respect to claim 18, Jones teaches that the substrate heater heats the final recording substrate prior to a temperature of at least about 65°C (refer to element 21 of Fig.1 and lines 53-65 of column 9).

With respect to claim 19, Jones teaches a blade for metering the molten layer of intermediate transfer material on the intermediate transfer member to a substantially uniform thickness (refer to element 18 of Fig.1 and lines 52-55 of column 6).

With respect to claim 28, Jones teaches a marking material applicator that employs a phase change ink jet printing process (refer to lines 3 and 4 of the abstract).

With respect to claim 32, Jones teaches an intermediate transfer member that is a drum (refer to element 14 of Fig. 1).

Further, with respect to claim 34, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to include a block of intermediate transfer material that has at least one surface that substantially conforms in shape to that of the intermediate transfer member, as taught by Fujishiro (refer to element 31B of Fig. 1B), for the purpose of providing conformal coverage and application on an intermediate transfer member.

Further, with respect to claim 35, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to include a biasing mechanism to maintain contact between the block of intermediate transfer material and the intermediate transfer member as the block is consumed, as taught by Fujishiro (refer to element

33B of Fig. 1B), for the purpose of providing continuous coverage, as needed, to the intermediate transfer member as the intermediate transfer material is being expended.

With respect claims 57-59, 61-62, 72-74, 77-80, 84, and 87, *the printing process is anticipated based on the functions provided by the apparatus.*

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438) as applied to the claim 1 above, and further in view of Hattler (US3941085).

- Jones as modified by Fujishiro teaches an intermediate transfer material applicator that is mounted with a pressurized spring for moving the intermediate transfer material.
- But, Jones as modified by Fujishiro does not specifically mention that the transfer member can be moved into and out of contact with the intermediate transfer member – though pressurization of the spring would allow that capability and, thus, sufficiently meet the claimed criteria.
- Nevertheless, Hattler teaches an applicator of transfer material that can be moved into and out of contact with an object for applying transfer material (refer to element 46 and 68 of Fig. 2 and lines 9-27 of column 6).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro with an intermediate transfer material applicator that is mounted so that

the block of intermediate transfer material can be moved into and out of contact with the intermediate transfer member, as taught by Hattler, for the purpose of regulating the application of transfer material.

17. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438) as applied to the claim 1 above, and further in view of Bui (US5389958).

- Jones as modified by Fujishiro teaches that the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a certain thickness.
- But, Jones as modified by Fujishiro does not specifically mention a thickness of no more than about 60 microns – though mention of a thickness of about 50 microns would sufficiently meet the criteria range.
- Bui teaches an applicator that can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of no more than about 60 microns (refer to lines 38-55 of column 5).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro with an applicator that can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of no more than about 60 microns, as taught by Bui, for the purpose of improved image quality.

18. Claims 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438) as applied to the claim 1 above, and further in view of Titterington (US5645888) and Korem (US6354701B2). Jones as modified by Fujishiro teaches the transferring of a quantity of the intermediate transfer material to the final recording substrate; however, they fail to teach a curing station for curing of the intermediate transfer material on the final substrate. Titterington teaches the curing of the intermediate transfer material on the final substrate (refer to lines 1-11 of column 6, lines 1-11 of column 9, and lines 36-48 of column 10). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro for the curing of the intermediate transfer material on the final substrate, as taught by Titterington, for the purpose of improved image quality. Further with respect to Titterington, Titterington teaches the use of ultraviolet radiation, infrared radiation, visible light, or e-beam radiation for curing. Therefore, it would further be obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro for the curing of the intermediate transfer material on the final substrate by means of radiation – such as ultraviolet, infrared, visible light, or e-beam, as taught by Titterington, for the purpose of improved image quality and effective curing. Though Jones as modified by Fujishiro and Titterington teaches the curing of the intermediate transfer material on the final substrate, a curing by means of a curing station is not mentioned – though this would be obvious to one skilled in the art in order to provide curing. Korem teaches a curing station for curing purposes (refer to element 218 of Fig. 6 and lines 49-53 of column 11). Therefore, it would have been

obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro and Titterington would allow the transferring of a quantity of the intermediate transfer material to the final recording substrate and a curing station to cure at least one reactive material in the intermediate transfer material on the final substrate, as taught by Korem, for the purpose of improved image quality.

With respect to claim 26, official notice is made that it is known that the range of ultraviolet extends to encompass the low-energy x-rays. Therefore, since no specific range of x-ray is set forth or disclosed by the applicant, the use of x-ray (in claim 26) is rejected along with claim 22.

19. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438), Titterington (US5645888), and Korem (US6354701B2) as applied to the claim 1 above, and further in view of Shinkoda (US20030038871).

- Jones as modified by Fujishiro, Titterington, and Korem teaches the transferring of a quantity of the intermediate transfer material to the final recording substrate and a curing station to cure at least one reactive material in the intermediate transfer material on the final substrate
- But, Jones as modified by Fujishiro, Titterington, and Korem does not specifically teach the use of heat as the radiation for curing.
- Shinkoda teaches the use of heat as the radiation for curing (refer to paragraph 0067 of page 6).

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro, Titterington, and Korem for the use of heat as the radiation for curing, as taught by Shinkoda, for the purpose of improved image quality and having an alternative means of curing.

20. Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438) as applied to the claim 1 above, and further in view of Komatsu (US6059407).

- Jones as modified by Fujishiro teaches an apparatus wherein the marking material applicator applies an ink material.
- However, Jones as modified by Fujishiro does not specifically mention that the marking material applicator applies an ink that is liquid at room temperature.
- Komatsu teaches a marking material applicator that applies an ink that is liquid at room temperature (refer element 2 of Fig. 4 and lines 16-48 of column 6).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro with a marking material applicator that applies an ink that is liquid at room temperature, as taught by Komatsu, for the purpose of utilizing ink that may be stored in replaceable ink cartridges.

Further, with respect to claim 31, it would have been obvious to one having skill in the art at the time of the invention was made to modify the device of Jones with Fujishiro to include a marking material applicator that employs a piezoelectric ink jet printing process, as taught by Komatsu (refer to lines 4-6 of column 4), for the purpose of providing an alternative printing process which utilizes piezoelectric elements to apply ink rather than heating elements.

21. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Fujishiro (US6295438) as applied to the claim 1 above, and further in view of Anderson (US5099256).

- Jones as modified by Fujishiro teaches an apparatus wherein the marking material applicator applies an ink material.
- However, Jones as modified by Fujishiro does not specifically mention that the marking material applicator employs a thermal ink jet printing process.
- Anderson teaches a marking material applicator that employs a thermal ink jet printing process (refer to lines 5-28 of column 1 and lines 42-67 of column 2).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Fujishiro with a marking material applicator that employs a thermal ink jet printing process, as taught by Anderson, for the purpose providing a means of providing on demand ink application to a surface using thermal energy.

22. With respect claim 33, no further limitation has been recited for the printing apparatus.

Therefore, since no further limitation has been made with respect to the printing apparatus, particularly the mentioned block of intermediate transfer material, the claim is rejected along with the parent claim (claim 1).

23. Claims 48-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, and further in view of Titterington (US5645888) and Korem (US6354701B2). Jones teaches the transferring of a quantity of the intermediate transfer material to the final recording substrate; however, they fail to teach a curing station for curing of the intermediate transfer material on the final substrate. Titterington teaches the curing of the intermediate transfer material on the final substrate (refer to lines 1-11 of column 6, lines 1-11 of column 9, and lines 36-48 of column 10). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones for the curing of the intermediate transfer material on the final substrate, as taught by Titterington, for the purpose of improved image quality. Further with respect to Titterington, Titterington teaches the use of ultraviolet radiation, infrared radiation, visible light, or e-beam radiation for curing. Therefore, it would further be obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones for the curing of the intermediate transfer material on the final substrate by means of radiation – such as ultraviolet, infrared, visible light, or e-beam, as taught by Titterington, for the purpose of improved image quality and effective curing. Though Jones as modified by Titterington teaches the curing of the intermediate transfer material on the final substrate, a curing by means of a curing station is not

mentioned – though this would be obvious to one skilled in the art in order to provide curing. Korem teaches a curing station for curing purposes (refer to element 218 of Fig. 6 and lines 49-53 of column 11). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Jones as modified by Titterington would allow the transferring of a quantity of the intermediate transfer material to the final recording substrate and a curing station to cure at least one reactive material in the intermediate transfer material on the final substrate, as taught by Korem, for the purpose of improved image quality. Further, *the printing process is anticipated based on the functions provided by the apparatus.*

24. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191) in view of Titterington (US5645888) and Korem (US6354701B2) as applied to the claim 49 above, and further in view of Shinkoda (US20030038871).

- Jones as modified by Titterington and Korem teaches the transferring of a quantity of the intermediate transfer material to the final recording substrate and a curing station to cure at least one reactive material in the intermediate transfer material on the final substrate
- But, Jones as modified by Titterington and Korem does not specifically teach the use of heat as the radiation for curing.
- Shinkoda teaches the use of heat as the radiation for curing (refer to paragraph 0067 of page 6).

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones as modified by Titterington and Korem for the use of heat as the radiation for curing, as taught by Shinkoda, for the purpose of improved image quality and having an alternative means of curing. Further, *the printing process is anticipated based on the functions provided by the apparatus.*

25. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Bui (US5389958).

- Jones teaches a printing process where the applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a certain thickness.
- But, Jones does not specifically mention a thickness of no more than about 60 microns – though mention of a thickness of about 50 microns would sufficiently meet the criteria range.
- Bui teaches an applicator that can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of no more than about 60 microns (refer to lines 38-55 of column 5).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones with Bui so that an applicator can be configured to apply the molten layer of intermediate transfer material on the intermediate transfer member to a thickness of no more than about

60 microns, as taught by Bui, for the purpose of improved image quality. Further, *the printing process is anticipated based on the functions provided by the apparatus.*

26. Claims 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Askren (US20040246318).

- Jones teaches a printing process with a molten layer of intermediate transfer material on the intermediate transfer member.
- However, Jones does not specifically mention that the layer is applied through heating the intermediate transfer material.
- Askren teaches an applying of a layer to the intermediate transfer member by the heating of the intermediate transfer material (refer to paragraph [0107] of page 9).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones with an applying of the molten layer of the intermediate transfer material to the intermediate member through heating of the intermediate transfer material, as taught by Askren, for the purpose of providing easy application of the transfer material to the transfer member.

Further, with respect to claim 64, it would have been obvious to one having skill in the art at the time of the invention was made to modify the process of Jones to include heating of the intermediate transfer member and bringing of the intermediate transfer material block into

contact with the intermediate transfer member, as taught by Askren (refer to paragraph [0107] of page 9, paragraph [0083] of page 6, and paragraph [0099] of page 8), for the purpose of providing easy application of the transfer material to the transfer member.

27. Claims 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Titterington (US5958169).

- Jones teaches a printing process that involves heating a final recording substrate.
- But, Jones does not specifically mention a printing process that involves heating a final recording substrate to a temperature of no more than about 80 °C or of no more than about 70 °C.
- Titterington teaches a printing process that involves heating a final recording substrate to a temperature between about 50 °C and about 200 °C (refer to lines 40-46 of column 8), which range covers the claimed range/limitations.
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones with a printing process that involves heating a final recording substrate to a temperature of no more than about 80 °C or of no more than about 70 °C, as taught by Titterington, for the purpose of setting appropriate upper limits for the heating of the final recording substrates as needed depending on the ink composition and intermediate material composition applied to the substrate.

28. Claims 81 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Komatsu (US6059407).

- Jones teaches an process wherein the marking material applicator applies an ink material.
- However, Jones does not specifically mention that the marking material applicator applies an ink that is liquid at room temperature.
- Komatsu teaches a marking material applicator that applies an ink that is liquid at room temperature (refer element 2 of Fig. 4 and lines 16-48 of column 6).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones with a marking material applicator that applies an ink that is liquid at room temperature, as taught by Komatsu, for the purpose of utilizing ink that may be stored in replaceable ink cartridges. Further, *the printing process is anticipated based on the functions provided by the apparatus.*

Further, with respect to claim 83, it would have been obvious to one having skill in the art at the time of the invention was made to modify the printing process of Jones to include a marking material applicator that employs a piezoelectric ink jet printing process, as taught by Komatsu (refer to lines 4-6 of column 4), for the purpose of providing an alternative printing process which utilizes piezoelectric elements to apply ink rather than heating elements. Further, *the printing process is anticipated based on the functions provided by the apparatus.*

29. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Anderson (US5099256).

- Jones teaches a process wherein the marking material applicator applies an ink material.
- However, Jones does not specifically mention that the marking material applicator employs a thermal ink jet printing process.
- Anderson teaches a marking material applicator that employs a thermal ink jet printing process (refer to lines 5-28 of column 1 and lines 42-67 of column 2).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the process of Jones so that a marking material applicator employs a thermal ink jet printing process, as taught by Anderson, for the purpose providing a means of providing on demand ink application to a surface using thermal energy. Further, *the printing process is anticipated based on the functions provided by the apparatus.*

30. Claims 85 and 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Askren (US20040246318).

- Jones teaches a printing process that involves supplying an intermediate transfer material to form a molten layer on an intermediate transfer member.
- However, Jones does not specifically mention that the intermediate transfer material is a block or that a layer is applied through heating the intermediate transfer material onto the surface of the intermediate transfer member.

- Askren teaches an applying of a layer to the intermediate transfer member by the heating of the intermediate transfer material and that the intermediate transfer material is a block/stick (refer to element 60 of Fig. 5A to Fig. 6 and paragraphs [0099] of page 8, [0106] of page 9, and [0107] of page 9).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones so that a block supplies the intermediate transfer material and the applying of the molten layer of intermediate transfer material comprises melting a portion of the block of intermediate transfer material onto the surface of the intermediate transfer member, as taught by Askren, for the purpose of providing easy application of the transfer material to the transfer member.

Further, with respect to claim 86, it would have been obvious to one having skill in the art at the time of the invention was made to modify the process of Jones to additionally include the conforming of a surface of the block of intermediate transfer material substantially in shape to that of a intermediate transfer member, as taught by Askren (refer to element 60 of Fig. 7 and Fig. 8), for the purpose of providing conformal coverage and application on an intermediate transfer member.

31. Claims 89 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujishiro (US6295438), as applied to the claim 88 above, in view of Askren (US20040246318).

- Fujishiro does not specifically mention an applicator with the capability to selectively move a holder between an engaged and a disengaged position.

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- Askren teaches an applicator with the capability to selectively move a holder between an engaged and a disengaged position utilizing a retractor (refer to element 91 of Fig. 6 and element 180 of Fig. 17).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the applicator of Fujishiro with an applicator with the capability of selectively moving a holder between an engaged and a disengaged position utilizing a retractor, as taught by Askren, for the purpose of providing on-demand application.

Further, with respect to claim 90, it would have been obvious to one having skill in the art at the time of the invention was made to modify the applicator of Fujishiro with a biasing mechanism utilized by the holder so that the block of intermediate transfer material is in contact with the surface of the intermediate transfer member when the holder is in the engaged position, as taught by Askren (refer to Fig. 17 and paragraph [0084]), for the purpose of providing/maintaining contact of the intermediate transfer material with the intermediate transfer member during engagement.

32. Claim 91 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 37 above, in view of Askren (US20040246318).

- Jones teaches a printing process that involves the transfer of intermediate transfer material to both the image areas and in nonimage areas.
- However, Jones does not specifically mention that the intermediate transfer material is applied only in image areas of the final recording substrate.

- Askren teaches an applying of an intermediate transfer material layer to the intermediate transfer member to the entire width of an imaging area or a fraction of the entire width of the imaging area (refer to paragraph [0077] of page 5).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones so that the intermediate transfer material is applied only in image areas of the final recording substrate, as taught by Askren, for the purpose of conserving the intermediate transfer material.

33. Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 37 above, in view of Blair (US6458461).

- Jones teaches a printing process that transfers an intermediate transfer material to a final recording substrate.
- However, Jones does not specifically mention that the transfer of the intermediate transfer material to the final recording substrate enables control of the gloss characteristics of the final substrate.
- Blair teaches that a glossy characteristic is evident with an application of a release agent/intermediate transfer material on a recording substrate, with more subtle effects seen in cases of duplex printing (refer to lines 12-19 of column 2). Further, since the silicone structure presented by Blair has similar structure as presented by the applicant, the properties and characteristics of gloss on the final substrate will also be inherent for the process disclosed by Blair.

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones so that the transfer of the intermediate transfer material to the final recording substrate enables control of the gloss characteristics of the final recording substrate, as taught by Blair, for the purpose of providing gloss capability through utilization of an already present intermediate transfer material suitable to provide glossy characteristics.

34. Claim 94 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 37 above, in view of Blair (US6458461).

- Jones teaches a printing process that transfers phase change ink, which can exhibit transparency characteristics and has properties that work well with a liquid layer intermediate transfer material to a final recording substrate (refer to lines 32-49 of column 10).
- But, Jones does not specifically mention that the transfer of the intermediate transfer material to final recording substrate enables control of the transparency characteristics – though mention of the intermediate transfer material working well with the transparency characteristics of phase change ink would give evidence that the intermediate transfer material provides an enabling factor in the control of the transparency characteristics on the final recording substrate – thus, sufficiently meet the claimed criteria.
- Nevertheless, Blair teaches that control of the transparency characteristic is evident with a release agent/intermediate transfer material on a recording substrate (refer to lines 20-35 of column 4). Further, since the silicone structure

presented by Blair has similar structure as presented by the applicant, the properties and characteristics of transparency on the final substrate will also be inherent for the process disclosed by Blair.

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing process of Jones so that the transfer of the intermediate transfer material to the final recording substrate enables control of the transparency characteristics on the final recording substrate, as taught by Blair, for the purpose of providing transparency capability through utilization of an already present intermediate transfer material suitable to provide transparency characteristics.

35. Claim 95 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above. Jones does not specifically mention that a final recording substrate has two major surfaces, but Jones does refer to a recording substrate being a “plain paper” (refer to lines 27-36 of column 8), which is known to ones skilled in the art to have two major surfaces. Further, Jones does not specifically mention that a marking material is transferred from the intermediate transfer member to only one of the major surfaces, but Jones does refer to an intermediate transfer surface (a singular drum) that presses an ink image to the final receiving surface (a singular reference to one side) and demonstrates a single path for application to only one major surface as evident in Figure 1 by element 28. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to utilize a printing process where the final recording substrate has two major surfaces and the marking material is transferred from the intermediate transfer member to only one of the major surfaces

of a substrate, as taught by Jones, as it is well-known and recognized in the art to utilize an intermediate transfer member for the purpose of applying an image to only one side of a substrate.

36. Claim 96 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US5805191), as applied to the claim 36 above, in view of Hindman (US5614933).

- Jones does not specifically mention that a final recording substrate has two major surfaces, but Jones does refer to a recording substrate being a “plain paper” (refer to lines 27-36 of column 8), which is known to ones skilled in the art to have two major surfaces. Jones, however, fails to teach a process involving a marking material that is transferred from the intermediate transfer member to only both of the major surfaces.
- Hindman teaches a process involving a marking material that is transferred from the intermediate transfer member to only both of the major surfaces, which occurs in a duplex printing process (refer to lines 1-4 of column 16).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to utilize a printing process where the final recording substrate has two major surfaces and the marking material is transferred from the intermediate transfer member to only both of the major surfaces of a substrate, as taught by Hindman, for the purpose of providing double-sided printing capability as is needed in publishing of books, magazines, etc.

Pertinent Art References

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Appropriate prior art, which is nearest to the subject matter defined in the claims, is listed in the Notice of References Cited. These prior art references, such as Thomas (US6193366), Mueller (US20010055052), Beach (US6084049), Strella (US4185140), Banks (US3810776), Thettu (US4063530), Murakami (US20050025520), Larson (US4258095), Jelfo (US4065585), Krebs (US3454137), Neal (US5502476), Fujino (US5623296), Takeichi (US6060205), Roth (US6354700), Wagner (US6540345), and Tanikawa (US6837578) are included because they pertain to printing apparatus and processes employing an intermediate transfer with intermediate transfer materials similar to those defined in the claims of the applicant.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos A. Martinez whose telephone number is (571) 272-8349. The examiner can normally be reached on 8:30 am - 5:00 pm (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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